

SCIENTIFIC NOTE

British Columbia's 50th mosquito species, *Aedes schizopinax*M. Jackson¹, C. Pyles¹, S. Breton¹, T. J. S. McMahon¹ and P. Belton²

Larvae of *Aedes* (*Ochlerotatus*) *schizopinax* Dyar, 1929 (Diptera: Culicidae) were collected in a survey by Culex Environmental for the District of Sparwood by Sylvia Breton on 12 May 2013. The site (Fig. 1) was a roadside pool near Sparwood, British Columbia (B.C.), approximately 20 km west of the Alberta border. Vegetation around the pool was mostly pine grass (*Calamagrostis rubescens* Buckley) with wild rose (*Rosa acicularis* Lindl.) in front of willow (*Salix* sp.), cottonwood (*Populus* sp.) and lodgepole pine (*Pinus contorta* Douglas). Representative specimens will be deposited in the Beaty Biodiversity Museum, University of British Columbia. In the 30 years since the publication of the Provincial Museum handbook on the mosquitoes of British Columbia (Belton 1983), four additional species have been collected in the province. They all have been examined by Dr. Peter Belton. The identities of two of these species, *Culex boharti* Brookman and Reeves and *Culex restuans* Theobald, are being confirmed. *Culiseta particeps* (Adams) was reported by Jackson *et al.* (2013), while the fourth species, *Aedes schizopinax*, is documented here.

Aedes schizopinax was described by Dyar, (1929) from larvae collected at Story Creek railway crossing in central Montana. The specific name (Greek: divided disc) derives from the sclerotised tergite, the saddle or disc on the terminal abdominal segment X of the larva. In contrast to the larvae of the sympatric and related *Aedes hexodontus* Dyar, *Ae. nevadensis* Chapman & Barr, and *Ae. punctor* (Kirby), the saddle does not completely surround the segment, leaving a noticeable gap ventrally. The species has since been collected from other subalpine regions of Montana and from similar habitats in Idaho, Oregon, California, Wyoming, Utah, Nevada and New Mexico (Darsie and Ward 2005). In Canada, the only other collections are of

larvae from Morleyville Settlement and Calgary, Alberta, 36 years ago (Enfield 1977). We retain the generic names used in Wood *et al.* (1979), noting that some authors have replaced *Aedes* with the subgeneric name *Ochlerotatus* for all the *Aedes* species named here.

The five larvae (preserved in 80% ethanol) that we examined match the description in Wood *et al.* (1979). No adults were reared. The symmetrically arranged head setae 7 and 5C had two and three branches, respectively, and all branches of the prothoracic setae 2 and 3P were as sturdy as setae 1P. The mesothoracic setae 1M had three strong branches, and these, with the more obvious evenly spaced teeth on the pecten and twenty-five or more pointed comb scales, clearly identify the species as *Ae. schizopinax*.

The four anal papillae of the larva are drawn in Plate 45 of Wood *et al.* (1979), with the dorsal pair slightly longer than the ventral ones. In the fourth and final instar larva that we measured, the anal segment AX was 0.61mm long and the dorsal two papillae were slightly longer than the ventral pair (0.38:0.33mm) and about the same length as the saddle. Carpenter and LaCasse (1955) in Fig. 188 and Darsie and Ward (2005) in Fig. 772 show the dorsal and ventral papillae to be the same length. The reason for the difference in lengths is not known, but it occurs in species in several genera, always with the dorsal longer than the ventral pair. The unequal length of the dorsal and ventral papillae is used by Wood *et al.* (Fig. 199) to separate *Aedes increpitus* Dyar from *Ae. stimulans* (Walker). However, the size of the papillae is known to vary inversely with the salinity of the environment (Phillips and Meredith 1969), so the consistency of the difference in length of the papillae deserves further study. The seta on the side of the saddle differed from that illustrated in Plate 45 of Wood *et al.* (1979)

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Figure 1. Grassy pool near Sparwood (49° 44' 10.28"N, 114° 53' 5.45"W; elevation: 1124m), the first known site for *Aedes schizopinax* in British Columbia.

being bifid rather than unbranched, but this matches the description of the Californian specimen in Fig. 772 of Darsie and Ward (2005).

Sparwood is in the Montane Spruce biogeoclimatic zone (B.C. Ministry of Forests 2013). It is approximately 160 km southwest of Morleyville settlement, Alberta, and 400km northwest of Story Creek, Montana, but all three localities are at elevations over 1000m. We expect that *Ae. schizopinax* will be found in similar habitats in other parts of

southeastern B.C.

There are at least 82 species of mosquitoes in Canada (Thielman and Hunter 2007). Because of the biogeographical history of B.C. and its rich diversity of habitats, more than half of these species occur in the province. We are confident that several more species will be identified, and in the meantime, we hope to collect and rear adult *Ae. schizopinax* in Sparwood; Adults are seldom observed, and little is known of their biology.

REFERENCES

- B.C. Ministry of Forests and Range. 2013. Biogeoclimatic Ecosystem Classification Program. Research Branch, Victoria, BC. <http://www.for.gov.bc.ca/hre/becweb/>.
- Belton, P. 1983. The Mosquitoes of British Columbia. Provincial Museum Handbook #41 Queen's Printer for British Columbia, Victoria, BC.
- Carpenter, S. J., and W. J. LaCasse 1955. Mosquitoes of North America (north of Mexico). University of California Press, Berkeley, CA.
- Darsie, R. F., and R. A. Ward 2005. Identification and Geographical Distribution of the Mosquitoes of North America, North of Mexico. University Press of Florida, Gainesville, FL.
- Dyar, H. G. 1929. A new species of mosquito from Montana with annotated list of mosquitoes known from the state. Proceedings of the United States National Museum 75 (2794):1–8.
- Enfield, M. A. 1977. Additions and corrections to the records of *Aedes* mosquitoes in Alberta. Mosquito News 37:82–85.
- Jackson M., T. Howay, and P. Belton. 2013. The first record of *Culiseta particeps* (Diptera: Culicidae) in Canada. The Canadian Entomologist 145:115–116.
- Phillips, J. E., and J. Meredith 1969. Active sodium and chloride transport by anal papillae of a salt water mosquito larva (*Aedes campestris*) Nature 222:168–169.
- Thielman, A. C., and F. F. Hunter. 2007. Photographic Key to the Adult Female Mosquitoes (Diptera: Culicidae) of Canada. Canadian Journal of Arthropod Identification. No. 4, 14 December 2007, available online at http://www.biology.ualberta.ca/bsc/ejournal/th_04/th_04.html, doi: 10.3752/cjai.2007.04
- Wood D. M., P. T. Dang, and R. A. Ellis. 1979. The Insects and Arachnids of Canada 6. The Mosquitoes of Canada (Diptera: Culicidae). Agriculture Canada, Ottawa, ON.